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TARGET COMMODITIES FOR ECONOMIC STUDIES

BY

OFFICE OF RESEARCH AND REPORTS

IN

SUPPORT OF JAEIC

PART A - Items in Which Studies Urgently Needed in Support of NIE 11-25X1B

[redacted]

It is felt that by December 1956 we will be able to submit a preliminary report on our findings, but cannot guarantee that this report will contribute significantly to JAEIC's current knowledge.

2. Nickel

Total nickel production is known within a range of error of ten percent. Scarce, though available, evidence indicates that production of high purity nickel oxide may be of recent origin. The Sixth Five-Year Plan for Krasnoyarsk Kray provides for the construction of a nickel carbonyl plant which probably will be the first of its kind in the USSR.

There is substantial information on the use of nickel wire mesh in the USSR. In the past, this material has been exploited by OSI.

3. Mercury

ORR prepared a paper on mercury in fiscal year 1955 in response to a request generated because of AE use of mercury. There is some possibility of developing new estimates of production by the end of 1956. It is unlikely that information on utilization by AE can be developed with presently available data.

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4. Pumps, Fans, Heat Exchanges, Compressors

It is highly improbable that quantitative data on production and distribution of the above commodities will be obtained. These general-purpose items, used in various sectors of industry, are manufactured in various types of equipment plants which also manufacture other industrial equipment. However, initial research may indicate the specific producers and point of distribution.

Technical data of US equipment probably will not be of great value since the scale of operation or approach in the USSR may not be comparable or there may be a substitution of equipment in either number or type.

5. Converters

The construction of converters or equipment for the atomic energy program requires facilities capable of handling and fabricating very large shapes. The transport equipment industry (primarily, locomotive producing facilities) and the shipbuilding industry may prove a fruitful area for research for indicators of production for the Soviet atomic energy program.

Certain developments in the locomotive production facilities in the USSR have occurred which make this area promising. Post-World War II steam locomotive output reached its peak in 1949, fell sharply to a postwar low in 1952, and then gradually recovered during the 1953-55 period. During this 1950-52 period, steam locomotive production was discontinued in four of the six postwar plants and curtailed in the remaining two. The capacity formerly devoted to locomotive manufacture was apparently converted to the fabrication of a series of heavy machine building products. A partial list of these items include steam turbines, generators, diesel engines and oil field equipment; numerous items, however, have not yet been identified. All these plants have the high ceilings and heavy crane capacity required for handling the heavy rolled plate used in the construction of gaseous diffusion converters and other chemical equipment used in the Atomic Energy Program. Detailed investigation of these plants' activities during 1950-52 might turn up significant information. A similar area of promise seems to exist in certain of the plants producing freight cars. A preliminary analysis and evaluation of the above facilities might be completed by December 1956.

6. Graphite

Previous ORR research on manufactured high grade graphite has been limited to an examination of electrodes. Although no published report is available, it may be possible to prepare a preliminary evaluation in time for the December 1956 deadline.

7. Electric Motors

The production of the whole Soviet Bloc has been estimated, and product size patterns can be established by modification of existing data with known factors. This product does not lend itself to more than a general end use pattern which can be established by minor research and use of existing data.

Preliminary research will be undertaken to determine the transactions between major motor producers and organizations and installations that are suspects of AE activities.

8. Industrial Labor Force

Available statistics do not permit a realistic estimate of the labor force employed in gaseous diffusion and in reactor sites. The industrial labor force classification is not disaggregated below the industrial sector level, in this case machine building and chemical industries. The regional division of employment is limited to a breakdown of the non-agricultural labor force by republics. Available knowledge as to the geographical distribution of economic activities is insufficient to enable analysts to estimate employment for specific economic sectors by oblast or krai by using as control totals population estimates derived from electoral statistics.

9. Concrete and Structural Steel

The availability of concrete in the Soviet economy can be calculated for the entire postwar period on the basis of cement production. Alternatively, cement production data can be supplied along with a factor for converting cement data to units of concrete. A limited portion of the available concrete (or cement) can be distributed in accordance with its end use.

An estimate of finished steel by major categories has been made for 1955. Categories which can be used for structural purposes includes: heavy sections, light sections, rods, sheets, strip and plates.

Consumption of some of these categories by the construction industry can be estimated. The quantities going to the construction industry can be further, but only partially, allocated by economic sectors.

10. Power-Factor Capacitors

Overall production estimates for the USSR will be produced from existing reports. End use patterns will be estimated from existing information.

Research concerning specific transactions will be completed for the three major sources of these capacitors. Availability and end use patterns will be estimated where information allows.

PART B - Items on Which Studies Should be Helpful Subsequent to NIE 11-2-57

1. Lithium

ORR does not have sufficient information on lithium and related compounds to make a significant contribution at this time. There is the possibility that a substantial effort might yield some information by the end of 1957. 25X1B

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3. Nickel

By restudying material in our files, and by undertaking plant studies, some information might be obtained about the USSR's capability for producing various grades of nickel. It is believed, however, that even with knowledge about the product-mix, atomic energy grades could not be separated.

4. Stainless Steel

No worthwhile estimate of past or present stainless steel production can be made. The USSR has the raw materials and technological knowledge for stainless steel production. Whether finishing and fabricating capacity is sufficient to avoid production bottlenecks is not known. Research in depth might provide an approximate estimate of stainless steel production but it would be difficult to defend.

The Sixth Five-Year Plan provides for an increase of 3.2 times in the capacity for producing stainless steel and heat resisting alloys. This might generate more information during the next year.

5. Electric Motors

During 1957 an attempt will be made to refine the end use patterns.

6. Pipe

An estimate for total pipe and tube production is available. The sizes and specifications used for an atomic energy installation would be difficult to determine. The Kanigen process (nickel plating), is known to the Bloc.

Research in depth could be done on pipe plants and tube mills in the faint hope that a connection between some of them and the USSR atomic energy program could be established. This, however, would not establish any criteria for evaluating the atomic energy program.

7. Tributyl Phosphate

Little, if any, information appears to be available on this chemical separator and the Soviets are believed to be using another process. However, in view of its potential value as an indicator, we think that the question of investing research time should be investigated.

8. Nitric Acid

We feel that a possibility exists of obtaining significant data from an investigation of the nitric acid distribution pattern. A definitive study of nitric acid is already available as a basis for further research and a relatively small investment in research time might turn up useful clues on the Soviet program.

As in the case of HF, OSI has, no doubt, delved into this aspect and a necessary preliminary to any final decision to go ahead would be a conference with OSI personnel.

9. Calcium Metal and Ether

A preliminary investigation must be made in order to determine the value of an extensive research effort for the above materials.